BY ORDER OF THE COMMANDER *AFSOC INSTRUCTION 21-103*
AIR FORCE SPECIAL OPERATIONS COMMAND *1 April 1999*

MAINTENANCE

AIRCRAFT BATTLE DAMAGE REPAIR (ABDR) PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*. It establishes requirements for AFSOC's ABDR program which is designed to train and equip selected aircraft maintenance personnel for rapid aircraft repair during contingency operations. This instruction is applicable to all AFSOC aircraft maintenance units and implements requirements of AF WMP-1, *Air Force War Mobilization Plan* and T.O. 1-1H-39, *General Aircraft Battle Damage Repair*. This instruction also applies to AFSOC gained Air National Guard and Air Force Reserve units.

SUMMARY OF REVISIONS

This revision aligns the previous guidance in AFSOCR 66-3 *Aircraft Battle Damage Repair Program* with AFPD 21-1 and specifies its applicability to Guard and Reserve Units. See Attachment 1 for Air National Guard and Reserve responsibilities.

1. **Concept.** The concept of ABDR is to repair aircraft as completely as possible within the constraints of an intense battle environment. Aircraft battle damage assessment and repair are essential elements to sustain sortie generation in times of conflict. The success of the AFSOC ABDR program relies heavily on the selection of aggressive and highly motivated wing/group program managers; highly qualified aircraft maintenance personnel to receive ABDR technician and assessor training; the identification and selection of necessary tools; and the availability of essential equipment and materials needed to accomplish rapid repairs. Realizing that rapid response is necessary to accomplish our mission, AFSOC units must be capable of quickly deploying ABDR assets. This must include the capability to implement ABDR procedures at the onset of hostilities.

1.1. In peacetime, maintenance standards and repair criteria are geared to restoring the aircraft to its original configuration. Repairs are made to restore the structure and systems to their original strength and configuration and are intended to last the life expectancy of the aircraft. Continuing

with these standards during a conflict would lead to a lack of available aircraft to support the on-going battle. ABDR is a systematic approach to solve this mission critical dilemma. ABDR repairs are designed to rapidly repair the battle damaged aircraft so that additional sorties can be accomplished, to contribute to the outcome of the ongoing conflict. Because of the nature of these repair techniques, AFSOC maintenance personnel must be fully aware of what can and cannot be accomplished.

1.2. During times of conflict, ABDR qualified personnel will deploy to designated recovery positions to aid in rapid repair of damaged aircraft. The ABDR assessor will evaluate the damage and prescribe the required repairs depending on aircraft availability and mission requirements. The ABDR trained technicians will then apply the necessary repairs. When time and resources permit, the repairs will be accomplished within peacetime standards. In addition to commanders having unit ABDR qualified personnel to expedite repairs, commanders also have the option I.A.W T.O. 00-25-107, *Maintenance Assistance*, of coordinating through MAJCOM for Combat Logistics Support Squadron (CLSS) and engineering support when battle damage exceeds the unit repair capability. This capability should be called upon at the earliest possible time when heavy aircraft casualties are expected. See Attachment 2.

2. **AFSOC Policies.** ABDR is an integral part of aircraft generation during conflict. AFSOC units must maintain the capability to implement and sustain ABDR. This is accomplished by:

2.1. A quality training program.

2.2. Including ABDR in unit-level or stand-alone exercises. CLSS teams and ABDR engineers should be invited to supplement these exercises.

2.3. Maintaining ABDR tool and material kits in a war-ready condition.

2.4. Providing ABDR familiarization to commanders, key managers, and supervisors.

2.5. Providing a deployment briefing on ABDR concepts to all deploying aircraft maintenance and aircrew personnel. Attachment 3 discusses the minimum briefing requirements.

2.6. Ensuring ABDR procedures are identified in war-planning documents, applicable regulations, and local operating instructions.

3. **Responsibilities:**

3.1. The AFSOC office of primary responsibility (OPR) for ABDR matters is HQ AFSOC/LGMW. The OPR will:

3.1.1. Provide MAJCOM Policy and guidance to implement, maintain, employ, and sustain an active ABDR capability.

3.1.2. Develop evaluation criteria to be used during inspections or evaluations and incorporate into AFI 90-201/AFSOC Supplement 1, Chapter 7 *Inspector General Activities*.

3.2. The ABDR program is ultimately a wing/group function. Therefore, maintenance commanders (CC) are responsible for the overall success of this program. The CC must ensure that the guidelines of this instruction are met by affording necessary resources to maintenance. Use the following guidelines to ensure each AFSOC unit develops an ABDR capability that will increase their combat effectiveness. The CC will:

3.2.1. Be responsible for the effectiveness and overall management of the ABDR program. Although the wing should be capable of implementing organic ABDR efforts without augmentation, commanders should utilize Combat Logistics Support Squadrons to enhance their overall combat capability. HQ AFSOC shall be contacted to coordinate CLSS deployment. See Attachment 2.

3.2.2. Assign an aggressive, ABDR assessor qualified non-commissioned officer as the wing/group ABDR Program Manager in the daily management of the ABDR program. ABDR is a full time duty and shall be structured as a stand-alone entity under maintenance.

3.2.3. Establish a supply account and a budget for the purpose of ABDR.

3.2.4. Ensure that training requirements as stated in paragraph 5 are met.

3.2.5. Ensure ABDR training aircraft are controlled/maintained according to this instruction. (Attachment 4).

3.2.6. Ensure ABDR is tasked during unit-level exercises and stand-alone ABDR exercises are conducted annually. ORI tasked units are evaluated on the effectiveness of the wing ABDR program (AFI 90-201, AFSOC Supplement 1).

3.2.7. Ensure ABDR is briefed during maintenance management meetings, operational plans briefings, and deployment briefings (units need an ABDR employment plan) that will allow the widest dissemination of ABDR requirements and the effects of ABDR on combat sortie-generation capabilities (Attachment 3).

3.2.8. Report the ABDR capability annually to HQ AFSOC/LG no later than 31 January. The required information is outlined in (Attachment 5).

4**. Minimum Resource Requirements**. The following are the minimum requirements for ABDR kits and trained personnel for each unit.

Figure 1. ABDR Kit Requirements.

16 SOW	6 kits (war ready)	1 kit (training)
352 SOG	2 kits (war ready)	1 kit (training)
353 SOG	2 kits (war ready)	1 kit (training)
919 SOW (RES)	0 kits (see attachment 1)	
193 SOW (ANG)	0 kits (see attachment 1)	

4.1. All ABDR kits will contain, as a minimum, the contents listed in the ABDR Tool and Material Core Kit list in T.O. 1-1H-39. Any deviations from minimum requirements requires HQ AFSOC/LGMW approval. While deployed commanders shall ensure kits are being managed properly. This is necessary to maintain our combat capability. Kit management is covered in the ABDR supervisors familiarization course.

4.2. Units are encouraged to configure ABDR tool and material kits using AFSC specific consolidated tool kits (CTK) as part of the overall ABDR kit. The tools from CTKs can be counted toward the requirements of the core kit listing.

4.3. To ensure adequate ABDR team composition and around the clock coverage, mobility UTCs will have three assessors and six technicians deployed when the PAA is one or two aircraft. For PAAs three or more, a minimum of one assessor and two technicians per aircraft shall deploy. Commanders will ensure at least 15 percent of assigned 7-levels in each core AFSC listed below are assessor qualified and 30 percent of assigned 5-levels in each core AFSC are technician qualified. Units with assessors above the 15 percent minimum may count the overage as technicians if needed. Additional AFSCs can be utilized at the discretion of the Maintenance Commander (CC). All eligible personnel with a core AFSC listed below must have completed initial ABDR technician and/or assessor training prior to being assigned to AFSOC overseas units.

4.3.1. 2A6X6, Electro-Environmental.

4.3.2. 2A6X4, Fuel Systems.

4.3.3. 2A6X5, Pneudraulics.

4.3.4. 2A5XX, Aircraft Mechanic (fixed and rotary wing APG).

4.3.5. 2A7X3, Structural Maintenance.

5**. Training Requirements:**

5.1. ABDR training is classified as either initial or refresher. Additionally, units shall make ABDR familiarization training available to other key maintenance personnel. ABDR instructors must meet qualifications as outlined in paragraph 5.4.

5.1.1. Initial Training. Those individuals selected to perform ABDR (both technicians and assessors) must attend an initial ABDR training course. Training is provided through local Logistics Support or supporting Combat Logistics Support Squadron (CLSS).

5.1.2. Refresher Training. Accomplish this training by a locally developed unit refresher course. AFSOC ABDR refresher course outlines can be obtained through HQ AFSOC/LGMW. ABDR assessors and technicians are required to receive this training annually. Hands-on training on ABDR mock-ups and/or ABDR training aircraft is required.

5.2. Identify ABDR training or qualification in the individual's training records. If computer-generated products are used, the unit will establish course codes for ABDR initial and refresher technician as well as initial and refresher assessor training.

5.3. Provide ABDR familiarization training to all logistics planners, maintenance officers, production supervisors, flight chiefs, dedicated crew chiefs, and assistants who are not ABDR qualified. The wing/group ABDR program manager determines and provides the content of this familiarization.

5.4. ABDR instructors must:

5.4.1. Complete subject matter qualification training.

5.4.2. Complete a formal academic/maintenance instructor course.

5.4.3. Complete subject matter qualification training for all courses he or she will instruct.

6. **Qualification Criteria:**

6.1. Assessors will meet the requirements established in T.O. 1-1H-39. Completion of a familiarization course on applicable weapons systems is highly recommended.

6.2. Technicians will be 5-level or above and it is recommended that 2A5XXs attend advanced systems course for their applicable weapon system.

ALAN J. NIEDBALSKI, Colonel, USAF
Director of Logistics

5. Attachments:
1. AFSOC Gained Units
2. Implementation of CLSS
3. Deployment Briefing format
4. Training Aircraft
5. Annual Reports

Attachment 1

AFSOC GAINED UNITS

A1.1. The following applies to Air National Guard and Air Force Reserve units.

A1.2. 193 SOW (ANG) will provide AFSOC a POC for ABDR. All other aspects of ABDR are the responsibility of active duty AFSOC units while deployed in theater. 193 SOW will utilize Combat Logistics Support Squadrons (AFMC) when not located in same theater of operation as active duty AFSOC units.

A1.3 919 SOW (AFRC) will provide AFSOC a POC for ABDR. 16 SOW will provide initial and refresher training, and exercises as needed. ABDR kits can be provided by any AFSOC unit. In order to accomplish this, 919 SOW will provide active duty AFSOC units mandays for one person for up to 80 days per year to accomplish ABDR duties.

A1.4. AFSOC active duty units may request military personnel appropriations (MPA) mandays to assist in building ABDR kits, training aircraft upkeep, and exercise preparation and evaluation.

Attachment 2

IMPLEMENTATION OF COMBAT LOGISTICS SUPPORT SQUADRONS

A2.1. When CLSS teams are deployed with AFSOC units they will be integrated into maintenance activities directly supporting the sortie generation effort. Unique weapons systems specific familiarization will be provided to CLSSs to further enhance combat readiness. CLSS forces possess unique ABDR/depot maintenance capabilities but CLSSs may be utilized for flightline maintenance. In addition, other required aircraft maintenance actions may be performed.

A2.2. During low ABDR activity, CLSSs will augment AFSOC maintenance units, during high ABDR activity, AFSOC ABDR personnel will augment CLSS.

Attachment 3

DEPLOYMENT BRIEFING FORMAT

A3.1. Description. Give this briefing to all deploying aircraft maintenance and aircrew personnel. This briefing is intended to familiarize all deploying personnel on their ABDR capability and should highlight the purpose and scope of ABDR. This briefing is not intended to instruct ABDR repair techniques, nor is any hands-on training required. An individual trained in ABDR and familiar with AFSOC policy relating to ABDR will accomplish this briefing.

A3.2. Minimum Briefing Topics. The following are the minimum topics which must be covered during this briefing:

A3.2.1. An explanation of ABDR concepts, goals, and terms.

A3.2.2. An explanation of how the unit plans to implement ABDR during hostilities and how ABDR directly supports combat sortie-generation.

A3.2.3. An explanation of the restrictions on when ABDR techniques can be used.

Attachment 4

TRAINING AIRCRAFT

A4.1. Units will coordinate with HQ AFSOC/LGMW for procurement of ABDR training assets.

A4.2. To provide realistic hands-on training in ABDR, training aircraft are obtained for use by operational units to enhance their ABDR program. These aircraft can be used for purposes other than ABDR. Aircraft can be used as ground trainers for maintenance related training, load training, weapons training, fire rescue training, and anti-terrorist training. If the training aircraft to be used for other than ABDR training, units wishing to use aircraft must get written permission from the wing or group ABDR manager.

A4.3. Upon receipt of training aircraft, the gaining organization will safe aircraft fuel systems for maintenance I.A.W. T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks, and Fuel Cells*, Section V. Hydraulic fluid, oil, and fuel are hazardous and will be managed using AFI 32-7042 *Solid and Hazardous Waste Compliance*. Complete a limited save list furnished by the system program manager. The save list requires the removal of all explosive items, classified items, survival equipment, and Air Force critical items. All remaining items will be retained for ABDR training. Items removed will be processed through base supply according to the appropriate supply and security regulations.

A4.4. Aircraft obtained for ABDR training are coded for test and evaluation prior to destruction. Under no circumstances will parts be removed from these aircraft for operational (flyable) aircraft. If an Air Force-wide shortage of a particular component is identified, the US Air Force ABDR Program Management Office (PMO), in conjunction with applicable weapon system manager and the MAJCOM ABDR manager, will determine if parts can be removed from ABDR training aircraft. If parts have been removed without following procedures or training aircraft have been vandalized or trespassing is evident contact the Security Police and the Air Force Office of Special Investigations. Signs will be posted stating proper procedures and wing or group ABDR managers duty phone number.

A4.5. AFTO Forms 97 **Aerospace Vehicle Battle Damage Repair And Assessment Record** and the AFTO 781-series Forms will be maintained on each aircraft for training purposes. These forms will be used to provide systems serviceability status and to document battle damage repairs accomplished during exercises and training sessions.

A4.6. Technical orders necessary for general upkeep of training aircraft will be obtained and maintained.

A4.7. The 23MM HEI damage simulation device should be used where possible to inflict damage. This device provides the most realistic method currently available for inflicting simulated battle damage.

A4.8. When training aircraft are damaged and repaired to the point where they are no longer satisfactory for ABDR training, organizations will coordinate with the US Air Force PMO and command ABDR manager prior to disposition action.

A4.9. Organizations possessing training aircraft will make every effort to ensure that aircraft systems are maintained to the point that electrical and hydraulic power can be applied and essential system operational checks performed.

A4.10. Aircraft components not repairable using ABDR techniques must not be damaged except on a limited basis for assessment purposes. Aircraft components damaged beyond organizational ABDR capability will not be ordered.

A4.11. These guidelines provide the minimum requirements for maintaining ABDR training aircraft. Organizations may place additional restrictions on the control of these aircraft.

Attachment 5

ANNUAL REPORTS

A5.1 Points of Contact:

A5.1.1 ABDR Program Manager
A5.1.2 Address:
A5.1.3 Phone:
A5.1.4 Assistant ABDR Program Manager:
A5.1.5 Address:
A5.1.6 Phone:

A5.2. ABDR Training:

A5.2.1. Number of technicians required by unit.
A5.2.2. Number of technicians qualified.
A5.2.3. Number of assessors required by unit.
A5.2.4. Number of assessors qualified.
A5.2.5. Exercises planned and conducted. Provide information on results of exercises.
A5.2.6. Problems encountered/shortfalls.

A5.3. Equipment Status:

A5.3.1. Complete ABDR kits:
A5.3.2. In-work ABDR kits: (i.e. 1 kit 50% complete)
A5.3.3. Equipment problems/shortfalls encountered:
A5.3.4. Suggestions/comments:
A5.3.5. Training aircraft status:

A5.4 Funding. Summarize money spent on training, TDYs, and general upkeep of ABDR tools and material.